To: Ripperda, Mark[Ripperda.Mark@epa.gov]
From: LEE, LILY
Sent: Fri 3/25/2016 6:15:13 AM
Subject: Background re rad questions from Dan Hirsch
Hunters Pt Basewide Rad 2006 release criteria table.pdf
HP Basewide Rad Removal Action Memo (00000002).pdf
Source Pages for EPA, DTSC, and Navy.pdf

As background, Bradley Angel (Greenaction and the EJ Task Force) had requested technical assistance from the UC Santa Cruz Nuclear Policy Program and asked me in January for a link to Shipyard technical documents for them to review. He later asked both the Navy and EPA to schedule a technical meeting with Greenaction and its advisors. Topics include the questions from Dan Hirsch below about the attached "Source Pages" file. In the mean time, Derek sent Bradley and Dan the attached 2006 Basewide Rad Removal Action Memo.

So that you have these handy, Rob took the 2006 release criteria and calculated the risk from those. Attached are the 2006 table with release criteria and the entire memo for reference.

Risks Using Navy Release Criteria
Risks Calculated Using EPA PRG Calculator

	Surfaces dpm/100 cm^2		Soil pCi/g		Water pCi/L
Radionuclide	Equipment & Waste	Structures	Construction Worker	Residential	Equipment & Waste
Americium-241	2.62E-08	2.619E-08	1.09E-04	2.89E-05	4.55E-05
Cesium-137	2.36E-05	2.36E-05	1.12E-06	2.42E-06	1.00E-04
Cobalt-60	3.80E-05	3.80E-05	1.12E-06	1.13E-06	3.86E-05
Europium-152	3.49E-05	3.49E-05	2.04E-06	3.46E-06	9.35E-06
Europium-154	2.84E-05	2.84E-05	2.97E-06	5.09E-06	5.05E-05
Hydrogen-3	--	--	5.47E-05	5.35E-05	1.46E-03
Plutonium-239	--	--	1.03E-06	7.25E-05	5.95E-05
Radium-226	1.82E-06	1.82E-06	4.29E-05	1.59E-04	1.14E-02
Strontium-90	1.85E-07	1.85E-07	1.08E-06	5.18E-06	1.73E-05
Thorium-232	--	--	5.72E-05	4.83E-04	5.14E-04
Uranium-235	8.04E-06	8.04E-06	1.17E-06	4.11E-06	6.48E-05

Below is a table that I made up using PRG calculator values for the corresponding values in Table 8-4. The footnotes should answer most your questions but feel free to call me if you require any clarification or elaboration.

SPRG (Surfaces) and PRG (Soil & Water) Calculator Results at the 1×10^{-4} Risk Level
Calculated 26-Feb-2016

	Surfaces dpm/100 cm^2		Soil pCi/g		Water pCi/L
Radionuclide	Equipment & Waste	Structures	Construction Worker	Residential	Equipment & Waste
Cesium-137	21201	21201	10.1	4.66	119
Cobalt-60	13165	13165	5.37	3.19	259
Plutonium-239	--	--	1360	3.57	25
Radium-226	5505	5505	2.33	0.63	0.044
Strontium-90	541680	541680	998	6.39	46

NOTES:

[a]The estimates for Surface PRGs are taken from the SPRG Calculator using default values for the 3-D direct external exposure indoor worker scenario. Requirements for building structure surfaces and for equipment & waste surfaces are taken to be the same, as per U.S. NRC Regulatory Guide 1.86 Termination of Operating Licenses for Nuclear Reactors dated June 1974 and reviewed December 2011.

[b]The estimates for Soil PRGs are taken from the PRG Calculator using default values for the outdoor worker and residential scenarios.

[c]The estimates for Water PRGs are taken from the PRG Calculator using default values for the residential scenario. Generally, MCLs for drinking water are preferred values for water.

[d]By agreement between the Navy and EPA Region 9 the remediation goal for soil is 1.0 pCi/g.

-----Original Message-----
From: Daniel O Hirsch [mailto:dohirsch@ucsc.edu]
Sent: Wednesday, February 10, 2016 3:14 PM

To: LEE, LILY <LEE.LILY@EPA.GOV>
Cc: bradley@greenaction.org; Marie Harrison <marieH@greenaction.org>
Subject: Re: setting up meeting or conference call with epa, navy, dtsc about shipyard environmental studies

Lily,

Among the technical issues about which we have questions and for which it would be helpful to have your technical people available who can answer questions in those areas are:

1. How the remediation goals for radionuclides were derived.

2. How the risk estimates for specific estimated radiation doses were derived, and how those doses themselves were derived.

3. The standards that have been and are being used to declare materials to be or not be low-level radioactive waste and where these materials have been and are being sent for disposal or recycling.

4. Questions about pre- and post-remediation risk assessments for both chemicals and radionuclides.

5. Numerous questions about status of characterization, environmental impact review, and remediation for different portions of HPBV.

6. Availability of various key documents.

We have some general questions about the above subject areas, but also detailed specific technical questions

Lily Lee

Cleanup Project Manager

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